North American Drought Monitor – August 2005

Canada: Rainfall for the month of August was generally below average or well below average in the south central interior of British Columbia, grading to near or above average in northern and coastal regions. The southeast corner of the province received well above average August precipitation, with Cranbrook reporting greater than 180% of average. Streamflow levels were generally below or well below average in the south central interior at the end of August, while near or above average elsewhere. The Similkameen and Tulameen river basins continued to receive below average rainfall and remained at near record low flow levels at the end of the month. The Similkameen River basin remained under formal drought declaration, while Coldwater River remained near record low flow levels. Dry conditions in the south interior expanded the area classified as abnormally dry (D0), with the appearance of moderate drought (D1) near Princeton and Kamloops.

Southwestern and northeastern Prairie regions were generally wet during August, with northwest and southeast generally drier. Drought concerns in southern Alberta were alleviated by well above average August precipitation. Below average amounts in much of the Northern and Peace River regions expanded abnormally dry (D0) conditions, although forage and on-farm surface water supplies were not significantly impacted and crop yields were expected to be near or above average. Abnormally dry (D0) conditions persisted in the Edmonton area, but agricultural impacts appear to be minimal with spring wheat rated as 86% good or excellent in the Northwest region, 94% good or excellent in the Northeast, and 77% good or excellent provincially. Precipitation since April 1st was above average or well above average in the Southern and Central regions, grading to below average in the Edmonton area and most of the Peace Region. Most of Saskatchewan received well above average August precipitation, with the exception of some stations in the southwest reporting near average amounts. Manitoba generally received well below average August precipitation, although major storm systems passed over the northwest and southeast corners of the agricultural region during the month. Pastures in the southwest were suffering from moisture stress, the fire danger risk was rated moderate to extreme in south central and eastern areas.

In southern Ontario, many stations reported below 80% of average August precipitation, with some stations west of Toronto or east of Prince Edward County reporting less than 40% of average amounts. Several streamflow stations in southern Ontario reported less than 50% of average August flow levels, with nine below 30% of average using the criteria defined by the Ontario Ministry of Natural Resources. Half of all stations in northeastern Ontario reported less than 70% of average August precipitation, with several reporting below 80% of average for the three month period ending August 31st. Several streamflow stations reported less than 70% of average August flow levels, with four below 30% of average using the criteria defined by the Ontario Ministry of Natural Resources. In the northwest, most stations reported above 80% of average precipitation for the month, with several above 100%. Preliminary data indicated that the Great Lakes basin received 91% of average August precipitation, with Lakes Superior, Michigan-Huron, Erie, and Ontario basins receiving 57%, 91%, 108%, and 154% of average

August precipitation, respectively. All of the Great Lakes remained below their respective average levels at the end of August, and were expected to continue their seasonal decline. Provincially, spring cereal yields were expected to be below average due to moisture stress, with preliminary estimates ranging from 60 to 90% of average depending on local precipitation amounts. Yields of corn, hay, and pasture were expected to be significantly impacted by dry summer conditions, while canola quality was significantly reduced by heat damage. Southern Ontario and parts of the northeast continued to be classified as abnormally dry (D0) with pockets of moderate drought (D1).

Precipitation across Quebec was generally below average for the month of August. Soil moisture was reportedly quite low in the Bas-Saint-Laurent and Outaouais regions at the end of the month, with more localized dry pockets elsewhere. Hay yields were reportedly impacted by drought in the Bas-Saint-Laurent, Saguenay-Lac-St-Jean, and Abitibi-Timiscamingue regions, with yields generally below average provincially. In general, cereal yields were expected to vary from slightly below average to near average depending on local conditions. Crops suffered from heat and moisture stress in July and August following excess moisture in the spring. Apple quality was reportedly impacted by heat and moisture stress in August, while the blueberry harvest was expected to suffer in the Charlevoix and Côte-Nord regions. An area in the Saguenay-Lac-St-Jean region northwest of Quebec City continued to be classified as experiencing moderate drought, while the abnormally dry (D0) area south of Quebec City shifted slightly to the east.

August precipitation in Nova Scotia and Prince Edward Island was generally well below average, with Halifax reporting 26.6% of average, Sydney 84.2%, Truro 52.0%, and Charlottetown 41.2%. There was some concern that potato yields would be impacted by summer moisture stress. Near or above average August precipitation over much of Newfoundland alleviated concerns for drought in the province, and crop yields are generally expected to be near average. New Brunswick was generally dry in August, with quite a bit of rain in the last few days of the month. The southeast portion of the province was driest, having missed the end-of-month precipitation, while the northeast was the wettest with Bathurst reporting 160.2% of average August precipitation. Streamflow runoff was generally well below average for August, while groundwater levels were near average. Prince Edward Island (PEI), most of Nova Scotia, and southeast New Brunswick were classified as abnormally dry (D0) due to low August precipitation. The fire danger index was moderate to high in Nova Scotia and PEI, moderate in New Brunswick and low in Newfoundland.

United States: August was wetter than normal when conditions are averaged across the nation. But for the areas experiencing persistent drought, the month was generally drier than normal with little change in the drought areas compared to the previous month. The percent area of the contiguous U.S. experiencing moderate to extreme drought (as defined by the Palmer Drought Index) increased slightly from 15% at the end of July to about 16% by the end of August.

The month was drier than normal across much of the Pacific Northwest into the northern Rockies and High Plains, much of the upper Midwest to Great Lakes, and parts of the mid-Atlantic to southern New England states, southern Texas, and central Florida. Many of these dry areas, plus parts of New Mexico, have been drier than normal for the last 3 to 9 months. Long-term moisture deficits (last 24 to 60 months) persisted across parts of the West into the northern High Plains and central Plains.

Alaska was generally drier than average in the interior and south central coastal stations, and wetter than average in the southeast panhandle. Across Hawaii, most of the stations were drier than average on the northern islands, while a mixed pattern was evident on the southern islands. Patches of D0 continued across these two states, with reports of wildfires occurring in both. By the end of August, over 3.8 million acres had burned this year in Alaska.

The dry weather was accompanied by hot temperatures in the Midwest. But enough rain fell during the month to result in the contraction of the D2-D3 area across Missouri to southern Wisconsin into a smaller area in and around northwest Illinois. Another core area of D2-D3 drought persisted across Arkansas into northeast Texas. As noted in media reports, the Midwest drought has lowered water levels along parts of the Mississippi and Ohio Rivers, curtailing barge traffic which affected several economic activities. Monthly mean streamflow was significantly below normal from west central Illinois to Upper Michigan and northwest Wisconsin. The drought has also dried up wells, caused insect infestations and wreaked havoc on corn and soybean fields. By the end of the month, 60% or more of the pasture and range land was in poor to very poor condition in Missouri (61%) and Arkansas (68%), as well as the northeastern states of Pennsylvania (66%), Connecticut (72%), and Rhode Island (95%), with 54% in Illinois. During the last two months, drought declarations or emergencies have been declared in four central states: Wisconsin, Illinois, Missouri, and Arkansas.

This year, northwest Illinois (climate division 1) experienced the second driest March-August and fifth driest boreal summer (June-August) in the 1895-2005 record. A paleoclimatic record based on tree rings dating back to 1650 indicates that summer drought conditions similar to or worse than those of 2005 occurred, on average, five years per century. The 20th century was notable for having a higher proportion of severe to extreme drought years than in the preceding 250 years, including the Dust Bowl years of 1930-1934, which is considered the worst drought of the 20th century for this area.

Beneficial rains across parts of Texas eliminated the drought areas from the central to southeast sections and contracted D0-D2 toward Deep South Texas along the southern Rio Grande River. Summer rains contracted D0 and D1 slightly in the Desert Southwest. But persistent dryness and significantly above normal temperatures across parts of the northeastern U.S. prompted the expansion of D0 and D1 in New York and Pennsylvania into southern New England.

Much of the Pacific Northwest and northern Rockies were dry in August, marking a continuation of a 6-year dry trend that has been occasionally interrupted by wet

conditions, most recently in June 2005. Areas of D0 to D2 continued across Oregon, Washington, Idaho, Montana, and Wyoming. Several large wildfires burned across the West during the month. By the end of August, most of the fires were concentrated in the northern Rockies, although during the month numerous large fires had burned parts of Alaska and the Columbia Plateau regions. Continued below-normal reservoir levels in the West reflected the long-term precipitation deficits in many states.

Mexico: August rainfall was much below normal across parts of northeast Mexico (Nuevo Leon and Tamaulipas), southern Baja California, northern Sinaloa, southern Mexico state, and the tip of the Yucatan peninsula. Other areas had below normal rainfall, with just a few areas wetter than normal. Averaged across the country, August national precipitation was 8% of the climatological mean, according with preliminary data provide by the National Meteorological Service (SMN). During the month, near normal precipitation was concentrated on an area that includes portions of northern Veracruz, southeastern San Luis Potosí, Hidalgo, Querétaro, northern Guanajuato, eastern Mexico state and the Federal District, in a pattern that reflected the track of tropical Storm Jose over central Mexico.

D0-D1 was introduced into northern Sinaloa-southern Sonora, a region that had received below normal precipitation during the past sixth months. Despite the rainfall deficit in this region, the National Water Commission (CNA) reported that dam levels were near normal to normal, due to wet conditions during the past boreal winter over most of northwest Mexico. D0 was introduced into southern Chihuahua-northern Durango and southern Baja California, and D0-D1 expanded into Nuevo Leon and Tamaulipas to reflect the recent dryness. In the central-northern states, D1 was eliminated and D0 contracted to an area in southern Durango-northwest Zacatecas, which has been drier than normal out to 9 months. D0 was removed along Veracruz-Tabasco. In northern Mexico, D1 was eliminated and D0 contracted in northeast Sonora and northwest Chihuahua. D0 was added to southern Mexico state-northern Guerrero and to the tip of the Yucatan peninsula due to recent dryness. An index created by CNA indicates that at the end of August and on a regional level, the availability of water in dams and reservoirs for all uses was about normal in northwest, northeast and southern Mexico, but below normal in the central part of the country (D.F, Hidalgo, Queretaro, Guanajuato, Aguascalientes, and most of Mexico State, Michoacan and Jalisco).